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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,747	11/30/2001	Tiecheng A. Qiao	8242913-W	9726

7590 12/01/2003
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EXAMINER

BISSETT, MELANIE D

ART UNIT PAPER NUMBER

1711

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/020,747	Applicant(s) QIAO ET AL.	
	Examiner Melanie D. Bissett	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2003.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-12 and 15 is/are allowed.
6) ☒ Claim(s) 16-20 is/are rejected.
7) ☒ Claim(s) 14 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>903</u> . | 6) <input type="checkbox"/> Other: |

1. The rejections based on 35 USC 103 have been maintained in part and withdrawn in part based on the applicant's amendments.

Claim Objections

2. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 has been amended to include the limitation that the ALB compound is affixed **while** coating the gelatin on the substrate. However, claim 14 states that the ALB compound is affixed **after** coating gelatin on the substrate. Therefore, the contradiction between claim 14 and claim 12 prevents claim 14 from further limiting claim 12.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zyomyx, Inc. in view of Marks et al.
5. From a prior Office action:

3. Zyomyx discloses protein arrays comprising a substrate, an organic thin film, and proteins immobilized on the thin film (p. 5 lines 6-12). The substrates may be coated before the addition of the organic thin film (p. 19 lines 20-29), where the organic thin film is preferably a monolayer having the formula X-R-Y which fits the applicant's trifunctional compound (p. 22 lines 8-20). The linking group R preferably comprises an alkyl chain having from 8-22 carbons, suggesting through-bond paths connecting the functional groups of not greater than 10 atoms (p. 25 line 27-

p. 26 line 5). The functional group X interacts with the substrate or coated substrate by chemical or physical means, where X includes isothiocyanate and isocyanate groups (p. 26 lines 14-22). Functional group Y interacts with a protein by covalent or non-covalent linkage, where Y includes aldehydes, maleimides, iodoacetyl, hydrazide, epoxy, aziridine, vinylsulfone, isothiocyanate, and isocyanates groups (p. 28 line 9-p. 29 line 9). Additionally, an affinity tag attached to the Y functional group include glutathione S-transferase or streptavidin groups (p. 33 lines 19-21). Antibodies, known protein capture agents, are noted as proteins to be immobilized on the thin film (p. 33 lines 1-11). A plurality of proteins are attached to different patches on the substrate (p. 5 lines 1-25). However, the reference does not point to gelatin as a coating substance for the substrates. Marks teaches protein assays using coated substrates, teaching the conventionality of coating gelatin on substrates to reduce non-specific binding (col. 32 line 59-col. 33 line 5; col. 33 lines 39-43). Such coatings also simplify covalent conjugation and enhance signal detection. Because Zyomyx is also concerned with non-specific binding (p. 12 lines 17-19), it is the examiner's position that it would have been prima facie obvious to include a gelatin on Zyomyx's substrate to reduce non-specific binding, simplify covalent conjugation, and enhance signal detection.

4. Regarding the coating coverage of gelatin on the substrate, it is the examiner's position that it would have been prima facie obvious to coat any amount necessary to optimize the non-specific binding, covalent conjugation, and signal detection properties of the coating.

Allowable Subject Matter

6. Claims 1-12 and 15 are allowed.
7. From a prior Office action:

The closest prior art, Zyomyx, discloses a method of making a protein array, where a coating is deposited or formed prior to the formation of an organic thin film that fits the applicant's formula of claim 12. The coating methods employed do not suggest the simultaneous formation coating of the gelatin and organic thin film layers, and the reference does not suggest the blending of the coating and organic thin film layers. It is the examiner's position that the applicant's claimed method, including the simultaneous coating of gelatin and trifunctional compound, would provide a novel and unobvious step over the prior art.

Response to Arguments

8. In response to the applicant's arguments that the present invention does not consist of patches on a surface but instead is drawn to a continuous coating, it is noted

that the claims do not exclude patches of coating. The claims simply call for a support having two components coated thereon. Also, it could be argued that a patch is a continuous coating to the extent that the patch is coated.

9. Regarding the arguments that the present invention coats the ALB component with the gelatin, note that all pending rejections are drawn to claims that do not specify such a limitation.

10. Regarding the applicant's arguments that Marks et al. does not teach the coating of gelatin on the substrate for a protein array, it is noted that the reference specifically teaches preparing a surface of a substrate by coating it with gelatin (col. 33 lines 39-44). The substrates noted in Marks encompass the same as those noted in Zyomyx, Inc. Both references teach the formation of a capture agent on a substrate. It is the examiner's position that the references have been properly combined, and the rejection is maintained. Note that the reference cited by the applicant "Elisa: Theory and Practice" is not of record.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539 or (571) 272-1068 after December 2003. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb


RABON SERGENT
PRIMARY EXAMINER